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Docket: 10512.103US01
Title: METHOD AND APPARATUS FOR CREATING A MULTI-PANEL VIDEO DISPLAY UNIT
GAMING DEVICE

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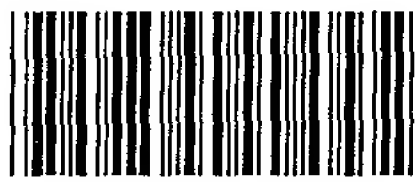
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- ☒ Utility Patent Application: Spec. 11 pgs; 32 claims; Abstract 1 pg.:
- ☒ 11 sheets of informal drawings
- ☒ An unsigned Combined Declaration and Power of Attorney
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23552

PATENT TRADEMARK OFFICE

METHOD AND APPARATUS FOR CREATING A MULTI-PANEL VIDEO DISPLAY UNIT GAMING DEVICE

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TECHNICAL FIELD

This invention relates in general to a method for creating a multi-panel video display unit gaming device, and more particularly to a method and apparatus for creating a computer generated video display based gaming device having a plurality of display unit in which gaming images, advertisements, and announcements are displayed to a player of the gaming device.

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BACKGROUND

With the development of computing systems that incorporate multi media capabilities, gaming systems that provide entertainment to players and also offer opportunities to place wagers on the outcome of the games have become prevalent. Users of these gaming systems are constantly faced with a desire to both attract players interest in a particular gaming device as well as keep the attention of players so that the players continue to make wagers using the gaming device.

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The owners of gaming systems typically operate gambling sessions and establishments such as casinos that also offer other attractions such as restaurants, retail establishments, and live entertainment venues. These establishments desire that the players of the gaming systems also patronize these other attractions. Multi media based computing systems offer operators of these establishments with capability to serve both of the above needs within a single gaming system.

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In the past, video based gaming systems typically did not present video based information to players other than video and information associated with the playing of the particular game. This fact meant that establishments needed to use additional efforts to advertise and entice players to both play the games and to patronize the other attractions.

5 This arrangement was an inefficient use of video display devices within video based gaming systems. As such a need existed to create gaming systems capable simultaneously displaying video images that both present a game and entice players to play a game as well as present advertisements and other announcements used to promote other attractions within a casino.

SUMMARY

10 To overcome the limitations in the prior art described above, and to overcome other limitations that will become apparent upon reading and understanding the present specification, the present invention discloses a multi-panel gaming device permits a player to operate a video-based game over two or more video display devices.

15 A system in accordance with the principles of the present invention includes a multi-panel gaming device permits a player to operate a video-based game. The gaming system has a programmable computing system enclosed within a computer enclosure having a top side and a back side. The gaming system also has a player wager and prize unit having a plurality of input and output devices relating to accepting wagers from the player and paying winnings to the player, the input and output devices are enclosed within the wager and prize unit.

20 The gaming system uses a pair of vertical support members extending upward from the top side of the computer enclosure. These support members are located on either side of a plurality of video display devices and hold the sequence of video display devices in a

vertical column. A player stands or sits in front of the rising sequence of video display devices to play the gaming system such that the player may easily view the sequence of images presented upon the display devices while operating the gaming system. The gaming system has two or more player display devices for presenting video images and audio sounds generated by the programmable computing system to the player.

Other embodiments of a system in accordance with the principles of the invention may include alternative or optional additional aspects. These and various other advantages and features of novelty which characterize the invention are pointed out with particularity in the claims annexed hereto and form a part hereof. However, for a better understanding of the invention, its advantages, and the objects obtained by its use, reference should be made to the drawings which form a further part hereof, and to accompanying descriptive matter, in which there are illustrated and described specific examples of an apparatus in accordance with the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring now to the drawings in which like reference numbers represent corresponding parts throughout:

Fig. 1 illustrates a perspective view of a three-panel embodiment of a multi-panel gaming device according to the present invention.

Fig. 2 illustrates a front view of a three-panel embodiment of a multi-panel gaming device according to the present invention.

Fig. 3 illustrates a top view of a three-panel embodiment of a multi-panel gaming device according to the present invention.

Fig. 4 illustrates a front view of a three-panel embodiment of a multi-panel gaming device illustrating the modular design of the gaming device having a computer enclosure and display unit and a wager and prize unit according to the present invention.

5 Fig. 5 illustrates a perspective view of a two-panel embodiment of a multi-panel gaming device according to the present invention.

Fig. 6 illustrates a front view of a two-panel embodiment of a multi-panel gaming device according to the present invention.

Fig. 7 illustrates a top view of a two-panel embodiment of a multi-panel gaming device according to the present invention.

10 Fig. 8 illustrates a front view of a two-panel embodiment of a multi-panel gaming device illustrating the modular design of the gaming device having a computer enclosure and display unit and a wager and prize unit according to the present invention.

Fig. 9 illustrates a perspective view of the wager and prize unit having a coin return hopper according to another embodiment of the present invention.

15 Fig. 10 illustrates a computing system used to generate the video images displayed upon the video display devices according to one embodiment of the present invention.

Fig. 11 illustrates a set of software modules executing within a computing system used to generate the video images displayed upon the video display devices according to another embodiment of the present invention.

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DETAILED DESCRIPTION

In the following description of the exemplary embodiment, reference is made to the accompanying drawings which form a part hereof, and in which is shown by way of

illustration the specific embodiment in which the invention may be practiced. It is to be understood that other embodiments may be utilized as structural changes may be made without departing from the scope of the present invention.

The present invention provides an apparatus for creating a computer generated video display based gaming device having a plurality of display unit in which gaming images, advertisements, and announcements are displayed to a player of the gaming device.

Fig. 1 illustrates a perspective view of a three-panel embodiment of a multi-panel gaming device according to the present invention. The multi-panel gaming device permits a player to operate a video-based game. The gaming system has a programmable computing system 110 enclosed within a computer enclosure 10 having a top side 22 and a back side 21. The gaming system also has a separate player wager and prize unit 11 having a plurality of input and output devices relating to accepting wagers from the player and paying winnings to the player, the input and output devices 23-25 are enclosed within the wager and prize unit 11.

The gaming system uses a pair of vertical support members 31-32 extending upward from the top side 22 of the computer enclosure 10. These support members are located on either side of a plurality of video display devices 41-43 and hold the sequence of video display devices 41-43 in a vertical column. A player stands or sits in front of the rising sequence of video display devices 41-43 to play the gaming system such that the player may easily view the sequence of images presented upon the display devices 41-43 while operating the gaming system.

The gaming system has two or more player display devices for presenting video images and audio sounds generated by the programmable computing system to the player. The video display devices 41-43 have both a pair of vertical edges and a pair of horizontal edges. The display devices 41-43 are coupled to the pair of vertical support members 31-32 about the vertical edges 61 of the video display devices.

The computer enclosure 10 and the wager and prize unit 11 are separate units electrically connected by a communication cable in order to permit the wager and prize unit 11 to be easily be connected and disconnected from the computer enclosure 10.

Fig. 2 illustrates a front view of a three-panel embodiment of a multi-panel gaming device according to the present invention. In the example embodiment, a plurality of user input devices 71-76 are located upon the computer enclosure. These input devices 71-76 permit a player to provide input commands and signals to the gaming system in order to initiate the playing of a game, to provide inputs needed to operate the game, and to accept other operating instructions from a player.

The gaming system has a programmable computing system 110 within the computer enclosure 10 that includes one or more concurrently operating software modules. These software modules generate a sequence of video images stored within a video interface modules for display upon the each of the video display devices 41-43. The sequence of video images correspond to video images used to display games images presenting the operation of the game to the player. The sequence of video images also correspond to video images used to display advertisements and announcements. The game images are displayed upon

different video display devices 41-43 from video display devices displaying the advertisements and announcements.

Fig. 3 illustrates a top view of a three-panel embodiment of a multi-panel gaming device according to the present invention. In one embodiment, the plurality of user input devices 71-76 located upon the computer enclosure consist of a set of individual input buttons. A player will depress a button corresponding to a desired input to start, to operate, and to end a game. One skilled in the art will recognize other user input devices such as a keyboard, a trackball, and other computer user pointing and input devices may be used in place of these buttons 71-71 without deviating from the spirit and scope of the present invention recited within the attached claims.

Fig. 4 illustrates a front view of a three-panel embodiment of a multi-panel gaming device illustrating the modular design of the gaming device having a computer enclosure and display unit and a wager and prize unit according to the present invention. The computer enclosure 10 and the wager and prize unit 11 are constructed from two separate units. These units are coupled together to form the gaming system used by a player. Such a construction permits a computer enclosure 10 and its computing system to be used in one embodiment where wager on the outcome of a play of a game are permitted. This same enclosure 10 and computing system 110 may also be easily reconfigured to use only tokens and award prize tickets in place of currency when the placement of a wager is not permitted simply by replacing one version of the wager and prize unit 11 for a second version of the wager and prize unit 11.

5 Figs. 5-8 illustrates a set of views of a two-panel embodiment of a multi-panel gaming device according to the present invention. The gaming system may be constructed using any number of video display units 41-42 arranged in a vertical arc that permits a player to simultaneously view each of the video display units 41-42. The same games may be played upon the various embodiments of the gaming system. In some cases, a game will use just one video display 41. In such a case, the other displays, if present, may be used for advertisements, announcements, and other sequences of video images designed to obtain and keep the interest of game players. In other embodiments, a game may display sequences of video images upon two or more video display units 41-43. In such cases, the advertisements, announcements, and other sequences of video images may still be displayed upon any video display unit in which game related images are not being displayed.

10 The distinction between video display units used to display game related images and video display units used to display other images applies to all multi-panel gaming system regardless of how many video display units are present in the system. If a particular game uses all of the video display units 41-43 present in the system, the advertisements, announcements, and other sequences of video images may still be displayed upon the video display units when a player is not actively using the system.

15 Fig. 9 illustrates a perspective view of the wager and prize unit having a coin return hopper according to another embodiment of the present invention. In embodiments in which wagering is permitted, the wager and prize unit 11 typically includes a bill, coin/token or credit card input device 23-24 that allows a player to add currency to a currently active banked amount. The wager and prize unit 11 also has a coin return hopper 25 that permits

winnings in the form of coins, tokens, and similar items of value to be returned by the gaming system when a player has won an outcome of a game. This hopper 25 may return the winnings after the end of each game outcome. This hopper 25 may also maintain a banked amount within the computing system 110 to which winnings are added and from which wagers are deducted. In the latter embodiment, the hopper 25 returns winnings to a player when instructed by a player at the conclusion of a session of plays of the game.

Fig. 10 illustrates a computing system used to generate the video images displayed upon the video display devices according to one embodiment of the present invention. The system includes a computing system 110, a player wager interface device module 120, and a plurality of video display devices 101-103. The computing system 110 is a programmable computer having a programmable processing module 114, a mass storage interface module 115 connected to a mass storage device 135, an I/OB interface module, and a video interface module 111-113 corresponding to each of the video display devices in the present embodiment of the system.

The computing system is constructed using a personal computer or similar industry standard computing system. The processing modules may be constructed using a microprocessor such as ones manufactured by Intel or Motorola. The mass storage devices may be any memory device capable of storing computer readable data and programs for use by the gaming system. In a preferred embodiment, the mass storage device is a CD-ROM drive and its corresponding interface module needed to connect the storage device 135 to the processing module 114 over a system bus. The technical description of a CD-ROM based mass storage system may be found in detail in a co-pending U.S. Patent Application, entitled,

System and Method for Verifying the Contents of a Mass Storage Device Before Granting Access to Computer Readable Data Stored on the Device, Serial No. 09/396,821, filed September 14, 1999, which is concurrently assigned with the present application and is incorporated by reference in its entirety herein.

5 The IIOB module provides a programmable interface to the wager and prize unit 11 and the player interface modules contained therein. These modules include a bill/coin acceptor module 121, a credit card acceptor, 122, a hopper, 123 and a player I/O module. The technical description of these computer controlled gaming machines may be found in detail in co-pending U.S. Patent Application, entitled, Method and Apparatus for Providing a
10 Compartmentalized Game Instruction Architecture within a Gaming Machine, Serial No. 09/396,190, filed September 14, 1999, that is commonly assigned and is incorporated by reference in its entirety herein. and in co-pending U.S. Patent Application, entitled, System and Method of Distributing Casino Games, Employing Platform Independent Programming and Common Communications Protocols, Serial No. 60/153,718, filed September 14, 1999,
15 which is also concurrently filed with the present application and is also incorporated by reference in its entirety herein.

Fig. 11 illustrates a set of software modules executing within a computing system used to generate the video images displayed upon the video display devices according to another embodiment of the present invention. The software consists of an operating system
20 201, display device drivers 212, and wager interface device drivers 211. These modules together provide the basis operation of the computing system.

The software in the computing system includes game specific modules that are used to implement games and related images and gaming machine modules that are used to interface the gaming modules with the hardware devices and their supporting driver modules.. The game specific modules include player game interaction modules 231, gaming
5 modules 232 and advertisement and announcement display modules 233. The gaming machine modules video image generation modules, audio sound generation modules, and player wager interface modules.

The software for one such gaming system is disclosed within U.S. Patent Application, entitled, System and Method of Distributing Casino Games, Employing Platform
10 Independent Programming and Common Communications Protocols, Serial No. 60/153,718, filed September 14, 1999, which is also concurrently assigned with the present application and is also incorporated by reference in its entirety herein, and

The foregoing description of the exemplary embodiment of the invention has been presented for the purposes of illustration and description. It is not intended to be exhaustive
15 or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching. It is intended that the scope of the invention be limited not with this detailed description, but rather by the claims appended hereto.

CLAIMS

WHAT IS CLAIMED IS:

1. An electronic gaming system for permitting a player to operate a video-based game, the gaming system comprising:

a programmable computing system enclosed within a computer enclosure having a top side and a back side;

a player wager and prize unit having a plurality of input and output devices relating to accepting wagers from the player and paying winnings to the player, the input and output devices are enclosed within the wager and prize unit;

a pair of vertical support members extending upward from the top side of the computer enclosure; and

two or more player display devices for presenting video images and audio sounds generated by the programmable computing system to the player, the player display devices having a pair of vertical edges and a pair of horizontal edges;

wherein the display devices are coupled to a pair of vertical support members about the vertical edges of the player display devices; and

the computer enclosure and the wager and prize unit are separate units electrically connected by a communication cable in order to permit the wager and prize unit to be easily be connected and disconnected from the computer enclosure.

2. The electronic gaming system according to claim 1, wherein the programmable computing system comprises:

a processing module electrically connected to a system bus;

two or more video interface modules connected to the system bus, each video display module is electrically connected to a player display device;

mass storage interface module connected to the system bus; and

an intelligent input and output module (IIOB) connected to the system bus;

wherein the IIOB module is further connected to the communications cable used to transmit and receive data to and from the wager and prize unit.

3. The electronic gaming system according to claim 1, wherein the wager and prize unit comprises one or more player interface units chosen from the following: a coin return hopper, a bill acceptor unit, a coin/token acceptor unit, a credit card acceptor unit, and a prize ticket payout unit.

4. The electronic gaming system according to claim 1, wherein the video display modules comprise an LCD panel for displaying video images.

5. The electronic gaming system according to claim 4, wherein the wherein the video display modules comprise one or more audio speakers.

6. The electronic gaming system according to claim 2, wherein the wherein the video interface modules comprise a video buffer memory module.

7. The electronic gaming system according to claim 2, wherein the programmable computing system comprise one or more concurrently operating software modules that

generate the sequence of video images stored within the video interface modules for display upon the video display devices.

8. The electronic gaming system according to claim 7, wherein the sequence of video images comprise video images used to display games images presenting the operation of the game to the player.

9. The electronic gaming system according to claim 8, wherein the sequence of video images further comprise video images used to display advertisements and announcements.

10. The electronic gaming system according to claim 9, wherein the game images are displayed upon different video display devices from video display devices displaying the advertisements and announcements.

11. The electronic gaming system according to claim 3, wherein the communications cable electrically connecting the IIOB module to the wager and prize unit comprises a plurality of electrical connections to connect each of the one or more player interface units in the wager and prize unit to the IIOB module.

12. The electronic gaming system according to claim 11, wherein each of the one or more player interface units operate in response to commands received from and transmitted through the IIOB module to the processing module, the commands are processed by software modules executing within the processing module.

13. The electronic gaming system according to claim 7, wherein the software modules generate the sequence of video images based upon video data elements retrieved from mass storage devices connected to the mass storage interface module.

14. The electronic gaming system according to claim 13, wherein the video data elements retrieved from mass storage devices connected to the mass storage interface module comprise streaming video data transmitted directly from the mass storage interface module to the video display interface module.

15. A gaming apparatus, comprising:

a computer controlled gaming device including a payment receiver;

a computer controlled actuator;

a computer controlled determiner awarding winning for selected plays;

a computer controlled distributor for paying or crediting winnings; and

a display assembly mounted to the gaming device, the display assembly including a plurality of display screens providing gaming information;

wherein the screens are vertically connected in a serial configuration.

16. A gaming apparatus according to claim 15, wherein the display screens extend upward from the gaming device.

17. A gaming apparatus according to claim 15, wherein the plurality of display screens face toward a center point forward and above the gaming device.

18. A gaming apparatus according to claim 15, wherein the display comprises at least three screens.
19. A gaming apparatus according to claim 15, wherein the display screens comprise video screens for displaying computer generated video images.
20. A gaming apparatus according to claim 15, wherein the display screens mount on support rails on support rails, wherein a support rail extends upward from each end of the display screens.
21. A gaming apparatus according to claim 17, wherein the display screens mount on support rails on support rails, wherein a support rail extends upward from each end of the display screens.
22. A gaming apparatus according to claim 21, wherein the support rails arc about a radius having a focal point substantially at the center point.
23. A gaming apparatus according to claim 15, wherein the gaming device comprises a plurality of modules interconnecting in a side by side configuration.
24. A gaming apparatus according to claim 15, wherein adjacent display screens are connected at an oblique angle to one another.
25. A gaming apparatus according to claim 15, wherein the display screens display portions of a larger image that form a continuous image.

26. A gaming apparatus according to claim 15, further comprising gaming device controls, wherein the controls are located on an upper portion of the gaming device.

27. A display system for a computer controlled gaming apparatus having a housing, comprising:

a plurality of video display screens mounted to an upper portion of the housing; wherein the display screens are connected along upper and lower edges to adjacent display screens.

28. A display system according to claim 27, wherein each of the display screens comprises a computer generated video display.

29. A display system according to claim 27, wherein the display system includes at least three connected display screens.

30. A display system according to claim 27, wherein the display screens are arranged at an obtuse angle to one another.

31. A display system according to claim 27, wherein the display screens are arranged to face a center point forward of the screens and above the housing.

32. A display system according to claim 31, wherein the display screens mount on arcing side rails, arcing about the center point.

ABSTRACT

The present invention provides an apparatus for creating a computer generated video display based gaming device having a plurality of display unit in which gaming images, advertisements, and announcements are displayed to a player of the gaming device.

5 apparatus consists of a multi-panel gaming device permits a player to operate a video-based game. The gaming system has a programmable computing system enclosed within a computer enclosure 10 having a top side and a back side. The gaming system also has a separate player wager and prize unit having a plurality of input and output devices relating to accepting wagers from the player and paying winnings to the player, the input and output
10 devices are enclosed within the wager and prize unit. The gaming system uses a pair of vertical support members extending upward from the computer enclosure. These support members are located on either side of a plurality of video display devices and hold the sequence of video display devices in a vertical column. A player stands or sits in front of the rising sequence of video display devices to play the gaming system such that the player may
15 easily view the sequence of images presented upon the display devices while operating the gaming system.

FIG. 1

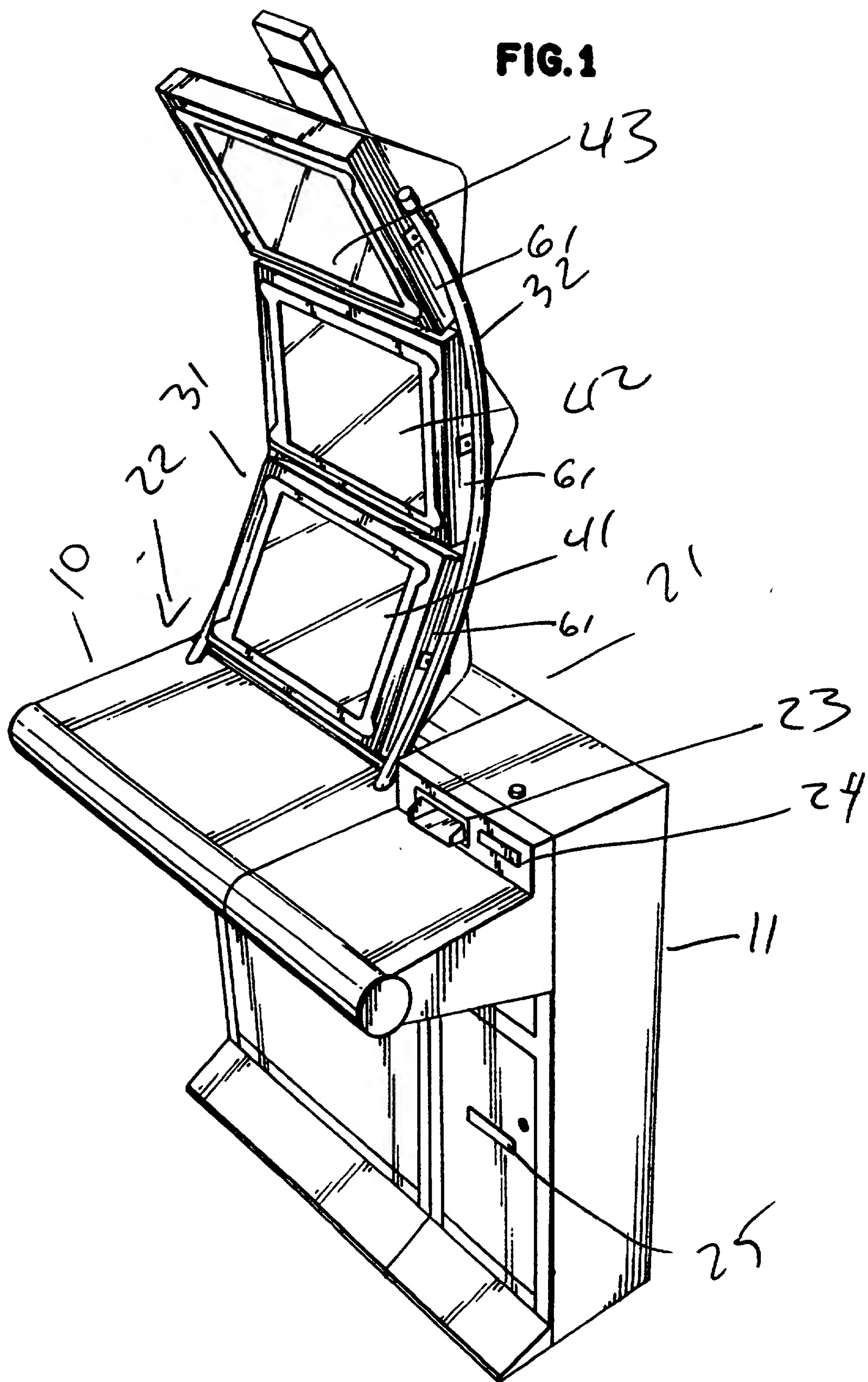


FIG. 2

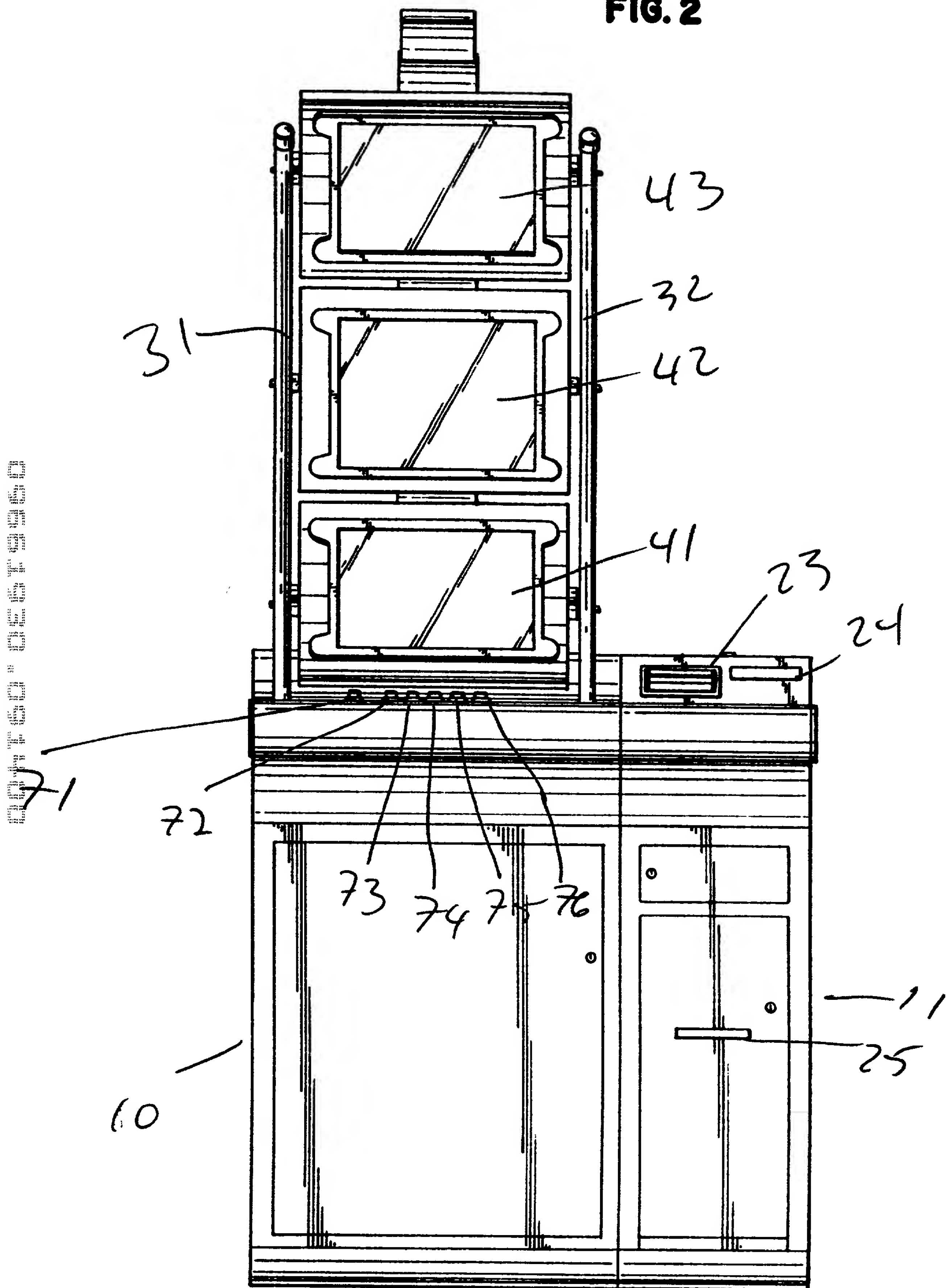
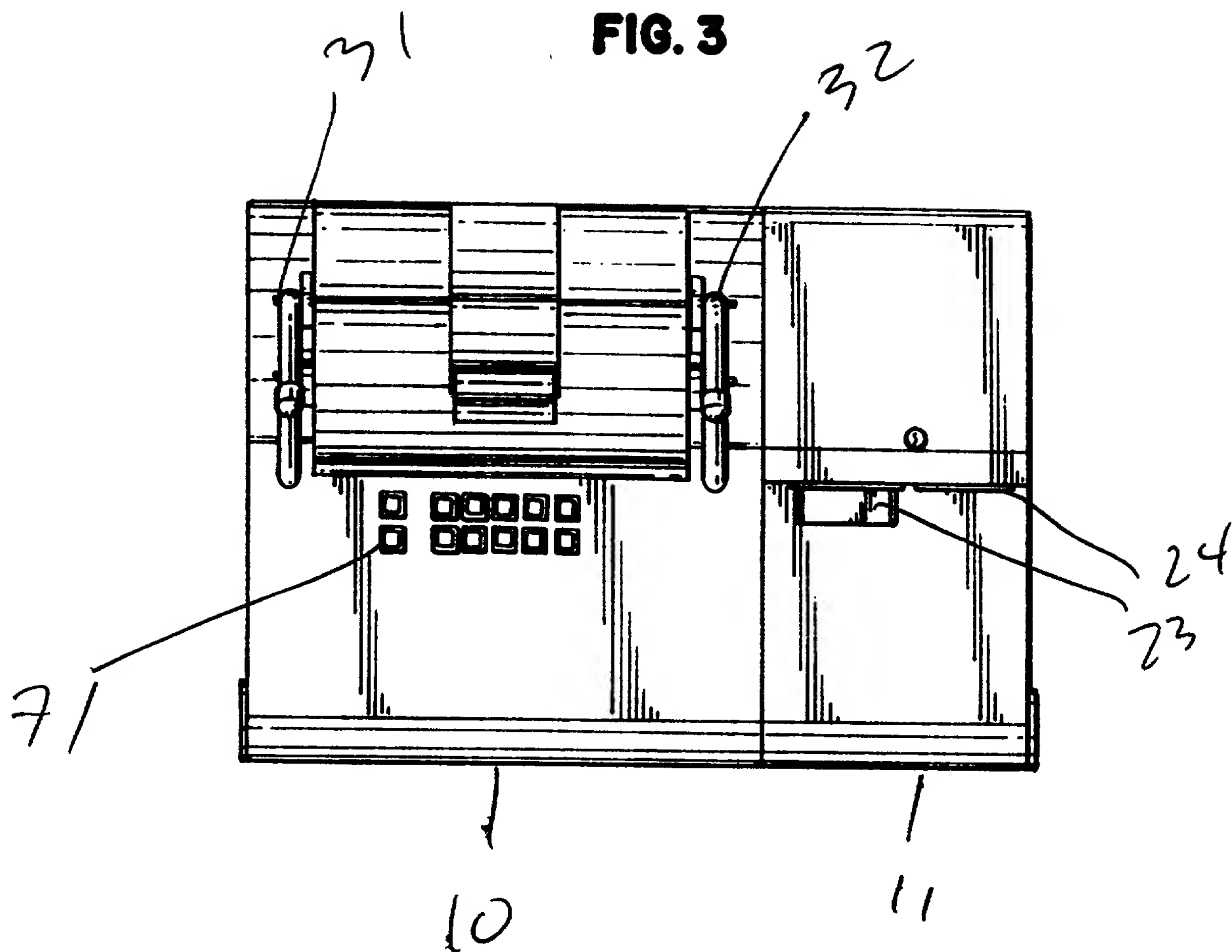


FIG. 3



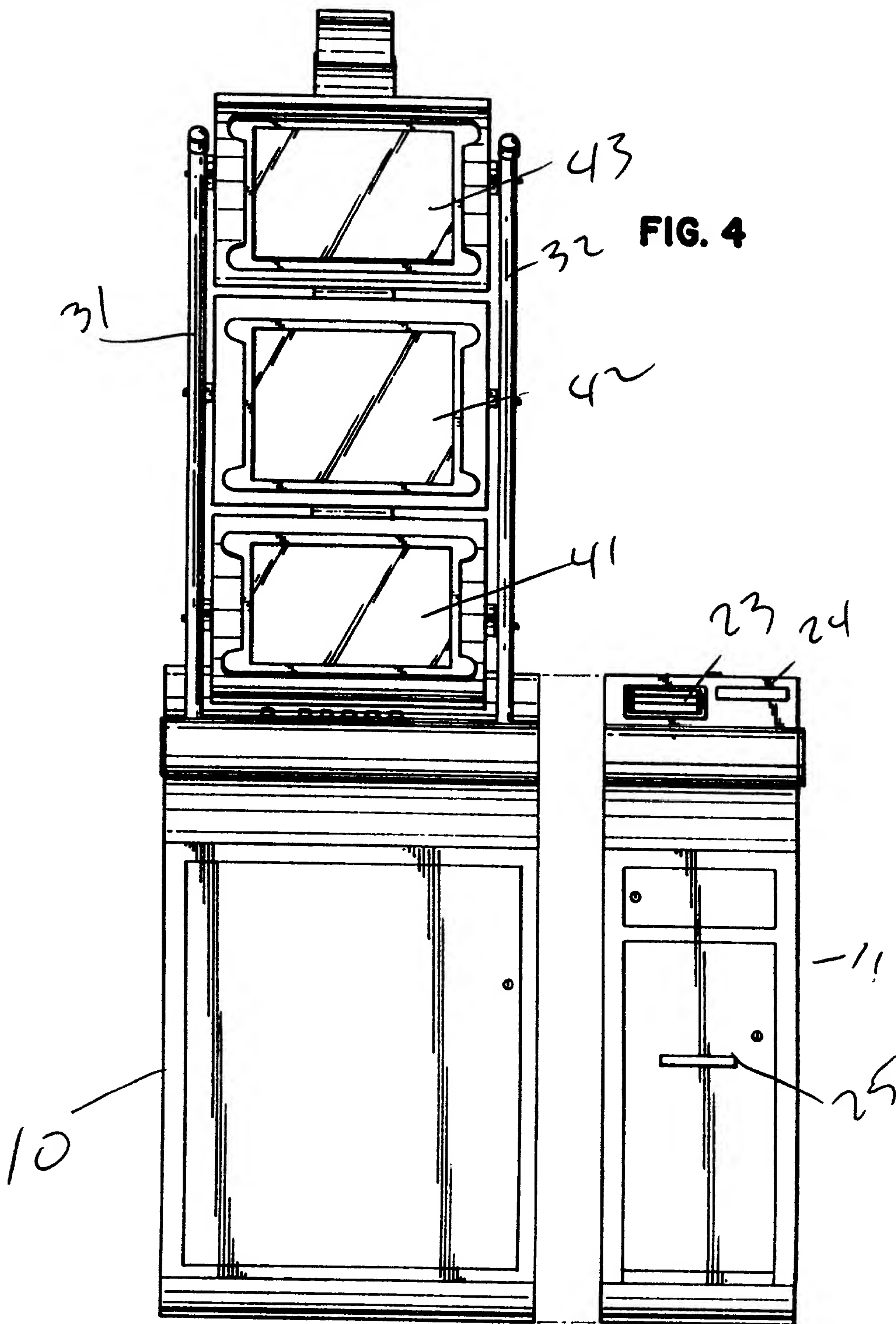


FIG. 4

FIG. 5

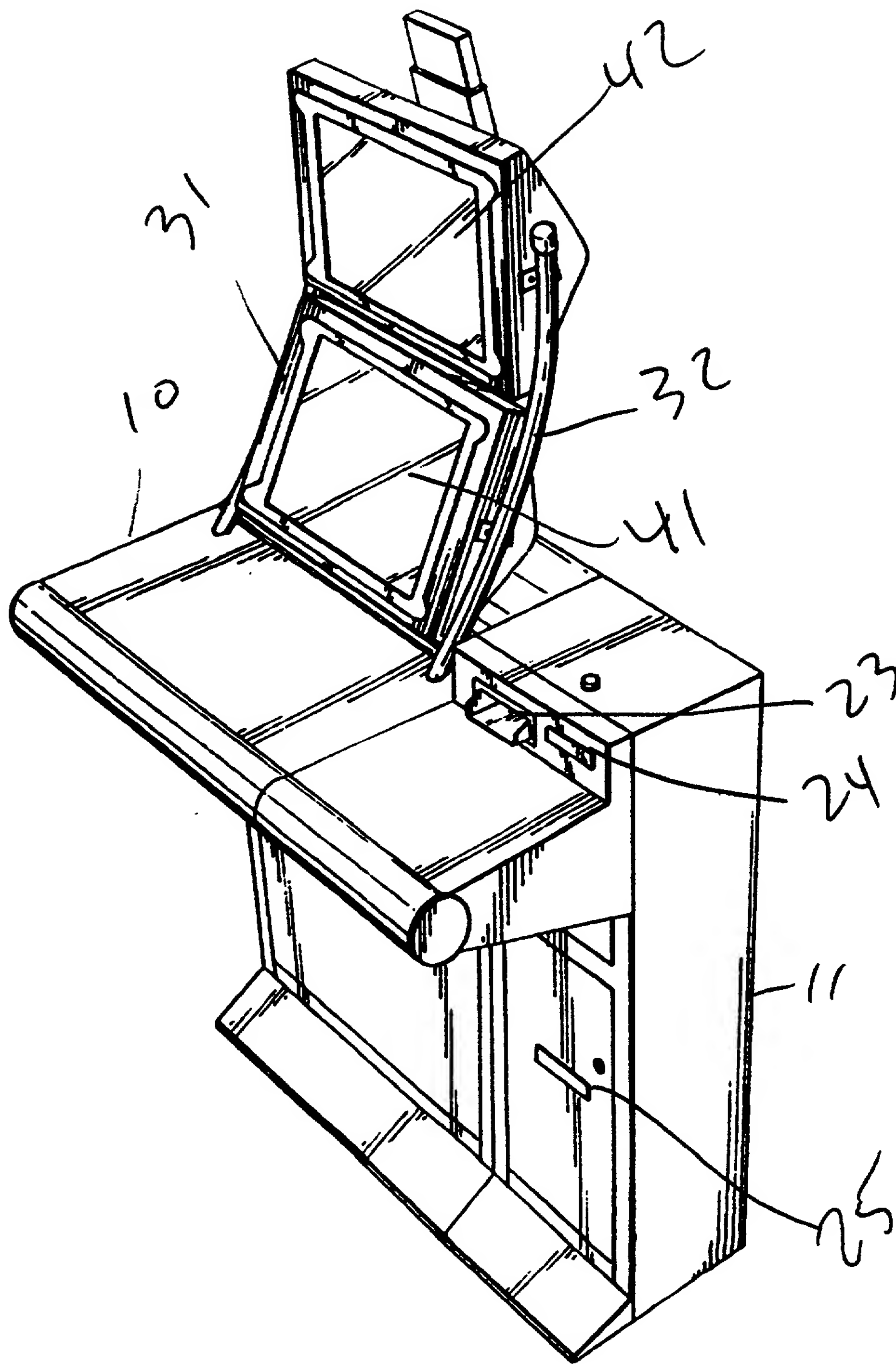


FIG. 6

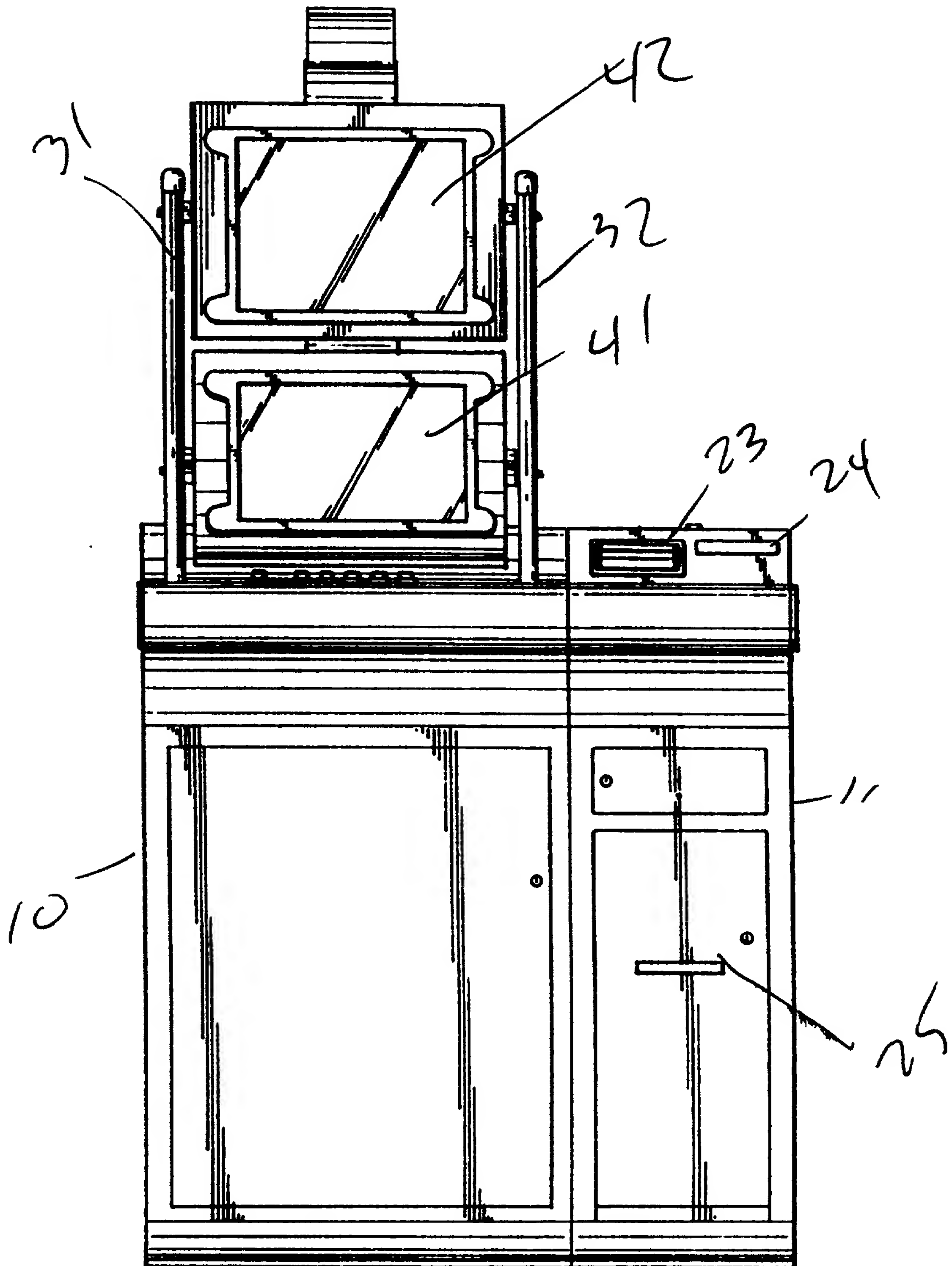
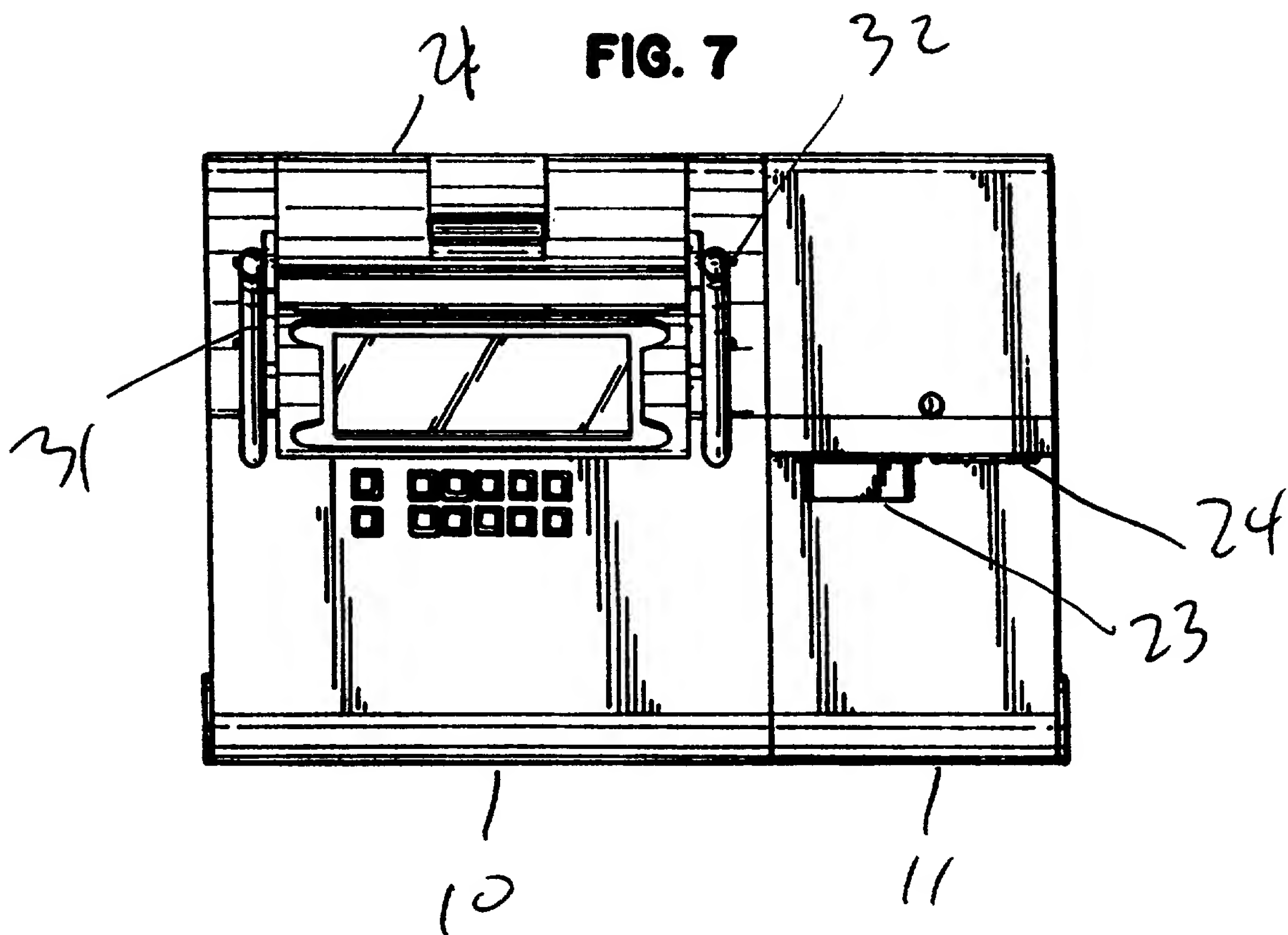


FIG. 7



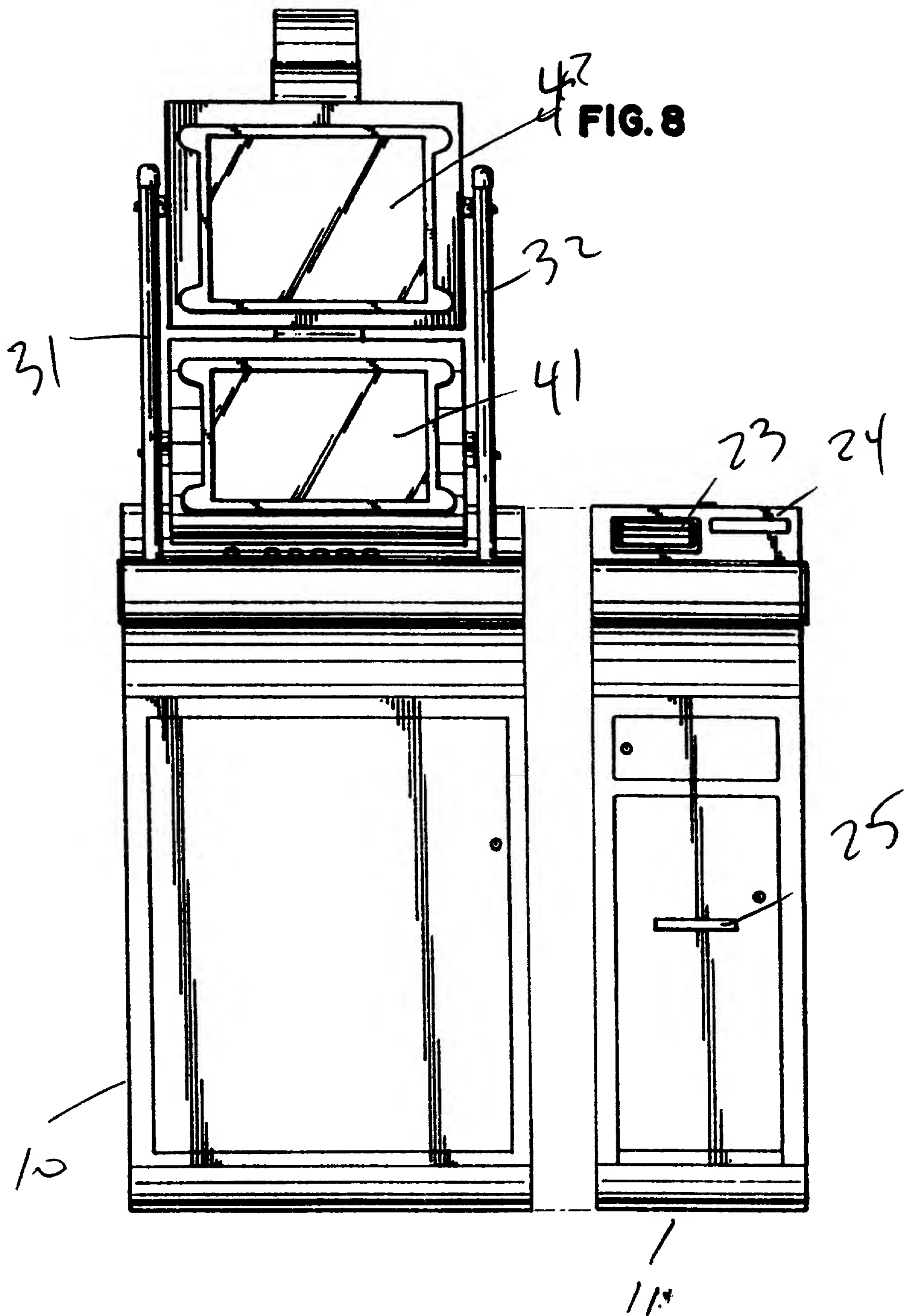


FIG. 9

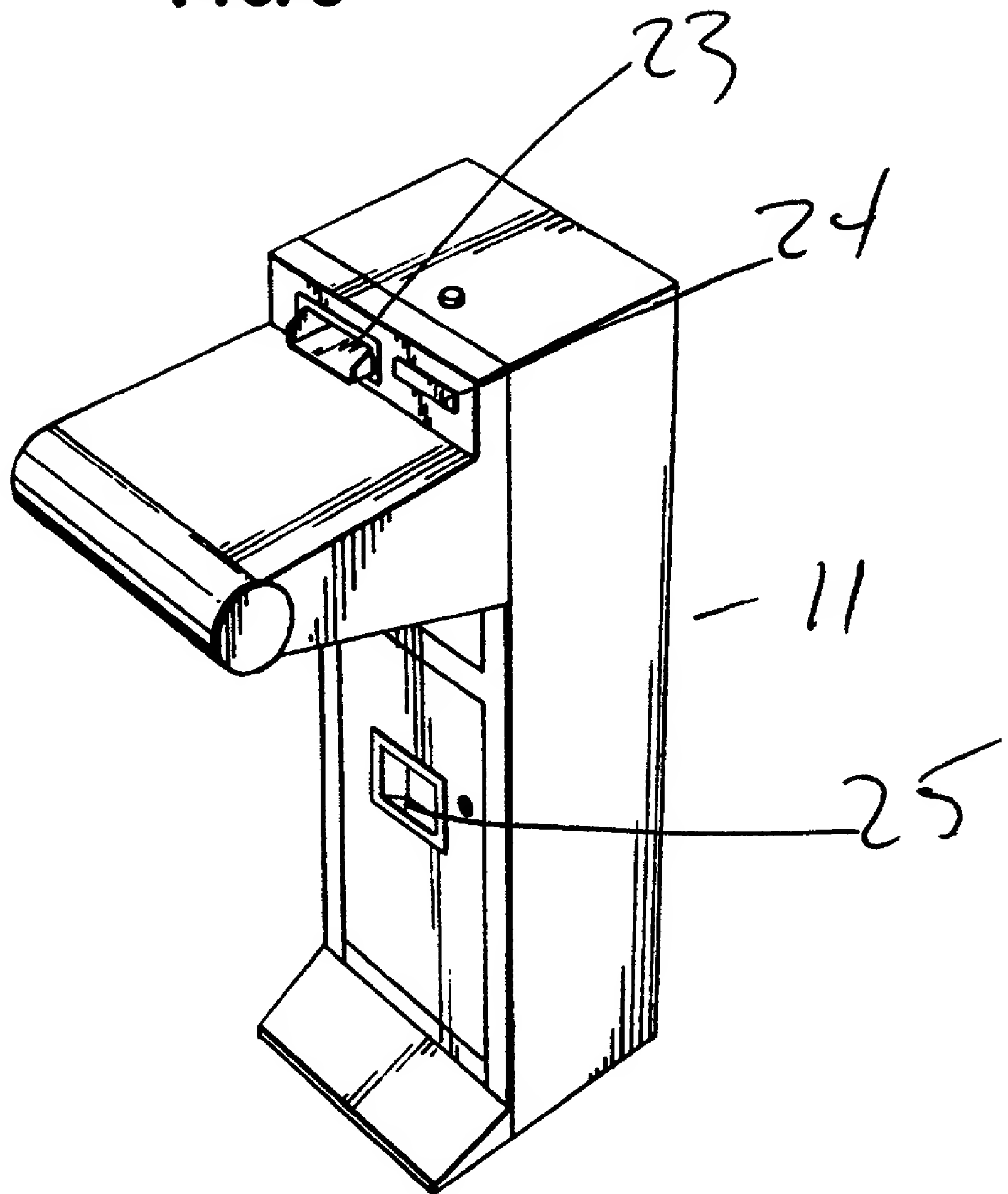


FIG. 10

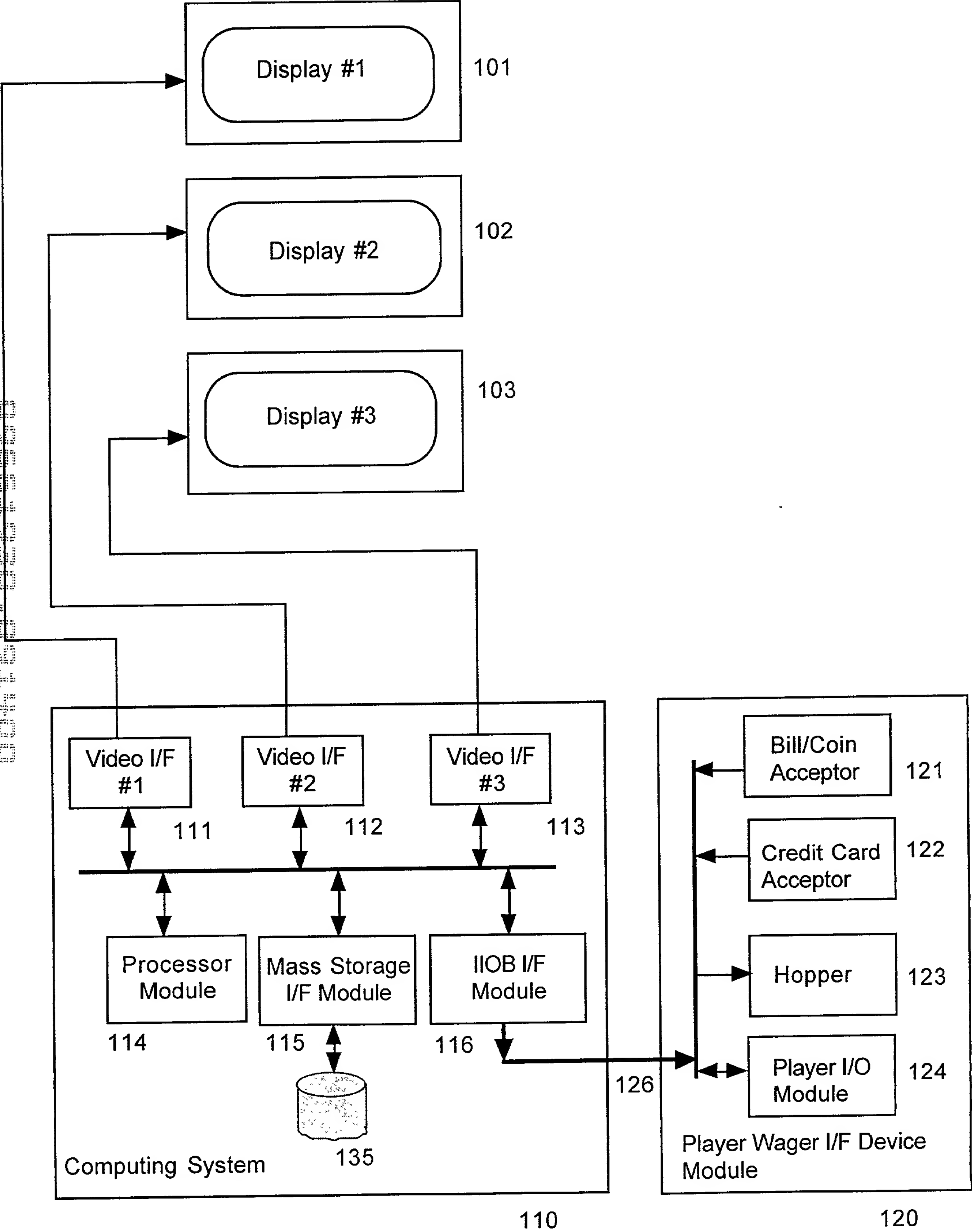
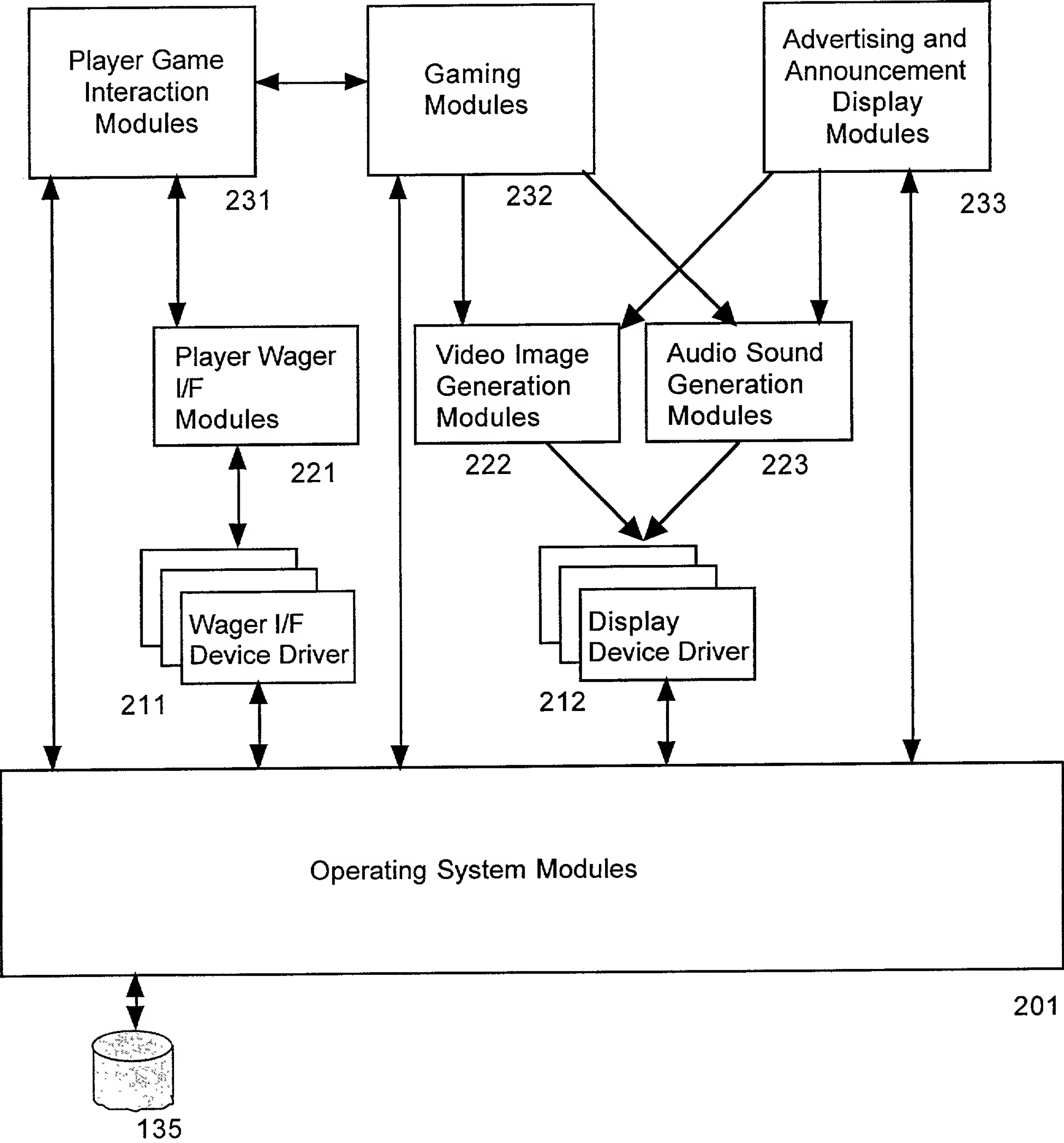


FIG. 11



MERCHANT & GOULD P.C.

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: METHOD AND APPARATUS FOR CREEATING A MULTI-PANEL VIDEO DISPLAY UNIT GAMING DEVICE

The specification of which

- a. ☒ is attached hereto
b. ☐ was filed on as application serial no. and was amended on (if applicable) (in the case of a PCT-filed application) described and claimed in international no. filed and as amended on (if any), which I have reviewed and for which I solicit a United States patent.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, § 1.56 (attached hereto).

I hereby claim foreign priority benefits under Title 35, United States Code, § 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

- a. ☒ no such applications have been filed.
b. ☐ such applications have been filed as follows:

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COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)
ALL FOREIGN APPLICATION(S), IF ANY, FILED BEFORE THE PRIORITY APPLICATION(S)			
COUNTRY	APPLICATION NUMBER	DATE OF FILING (day, month, year)	DATE OF ISSUE (day, month, year)

I hereby claim the benefit under Title 35, United States Code, § 120/365 of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. APPLICATION NUMBER	DATE OF FILING (day, month, year)	STATUS (patented, pending, abandoned)

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below:

U.S. PROVISIONAL APPLICATION NUMBER	DATE OF FILING (Day, Month, Year)

I hereby appoint the following attorney(s) and/or patent agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

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Daley, Dennis R.	Reg. No. 34,994	Qualey, Terry	Reg. No. 25,148
DalGLISH, Leslie E.	Reg. No. 40,579	Reich, John C.	Reg. No. 37,703
Daulton, Julie R.	Reg. No. 36,414	Reiland, Earl D.	Reg. No. 25,767
DeVries Smith, Katherine M.	Reg. No. 42,157	Samuels, Lisa A.	Reg. No. 43,080
DiPietro, Mark J.	Reg. No. 28,707	Schmaltz, David G.	Reg. No. 39,828
Edell, Robert T.	Reg. No. 20,187	Schuman, Mark D.	Reg. No. 31,197
Epp Ryan, Sandra	Reg. No. 39,667	Schumann, Michael D.	Reg. No. 30,422
Glance, Robert J.	Reg. No. 40,620	Scull, Timothy B.	Reg. No. 42,137
Goggin, Matthew J.	Reg. No. 44,125	Sebald, Gregory A.	Reg. No. 33,280
Golla, Charles E.	Reg. No. 26,896	Skoog, Mark T.	Reg. No. 40,178
Gorman, Alan G.	Reg. No. 38,472	Spellman, Steven J.	Reg. No. 45,124
Gould, John D.	Reg. No. 18,223	Stoll-DeBell, Kirstin L.	Reg. No. 43,164
Gregson, Richard	Reg. No. 41,804	Sumner, John P.	Reg. No. 29,114
Gresens, John J.	Reg. No. 33,112	Swenson, Erik G.	Reg. No. 45,147
Hammer, Samuel A.	Reg. No. P-46,754	Tellekson, David K.	Reg. No. 32,314
Hamre, Curtis B.	Reg. No. 29,165	Trembath, Jon R.	Reg. No. 38,344
Harrison, Kevin C.	Reg. No. P-46,759	Tuchman, Ido	Reg. No. 45,924
Hertzberg, Brett A.	Reg. No. 42,660	Underhill, Albert L.	Reg. No. 27,403
Hillson, Randall A.	Reg. No. 31,838	Vandenburgh, J. Derek	Reg. No. 32,179
Holzer, Jr., Richard J.	Reg. No. 42,668	Wahl, John R.	Reg. No. 33,044
Johnston, Scott W.	Reg. No. 39,721	Weaver, Karrie G.	Reg. No. 43,245
Kadievitch, Natalie D.	Reg. No. 34,196	Welter, Paul A.	Reg. No. 20,890
Karjeker, Shaukat	Reg. No. 34,049	Whipps, Brian	Reg. No. 43,261
Kastelic, Joseph M.	Reg. No. 37,160	Whitaker, John E.	Reg. No. 42,222
Kettelberger, Denise	Reg. No. 33,924	Wickhem, J. Scot	Reg. No. 41,376
Keys, Jeramie J.	Reg. No. 42,724	Williams, Douglas J.	Reg. No. 27,054
Knearl, Homer L.	Reg. No. 21,197	Withers, James D.	Reg. No. 40,376
Kowalchyk, Alan W.	Reg. No. 31,535	Witt, Jonelle	Reg. No. 41,980
Kowalchyk, Katherine M.	Reg. No. 36,848	Wu, Tong	Reg. No. 43,361
Lacy, Paul E.	Reg. No. 38,946	Xu, Min S.	Reg. No. 39,536
Larson, James A.	Reg. No. 40,443	Zeuli, Anthony R.	Reg. No. 45,255

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/ organization who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Merchant & Gould P.C. to the contrary.

Please direct all correspondence in this case to Merchant & Gould P.C. at the address indicated below:

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P.O. Box 2903
Minneapolis, MN 55402-0903



I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Signature of Inventor 201:				Date:

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

- (1) prior art cited in search reports of a foreign patent office in a counterpart application, and
- (2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

- (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim;
- (2) It refutes, or is inconsistent with, a position the applicant takes in:
 - (i) Opposing an argument of unpatentability relied on by the Office, or
 - (ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

- (1) Each inventor named in the application;
- (2) Each attorney or agent who prepares or prosecutes the application; and
- (3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.